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Educational Management Strategies Development for Improving Students' Sustainable Learning Ability in Higher Vocational Colleges in Guangdong Province

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ABSTRACT

This study explored strategies to enhance sustainable learning ability among students in higher vocational colleges in Guangdong Province. The research objectives were threefold: (1) to examine the current and expected situations of students' sustainable learning ability, (2) to develop educational management strategies to improve the students' sustainable learning ability, and (3) to explore the adaptability and feasibility of the educational management strategies to improve the students' sustainable learning ability. Utilizing a mixed-methods approach, data were collected from 384 students selected via multi-stage random sampling and analyzed using statistical tools, including the Modified Priority Needs Index ($PNI_{Modified}$), as well as qualitative methods like content analysis and expert evaluations. Findings highlighted three key components influencing sustainable learning: school environment, teacher, and student factors. The following results were obtained: (1) the current situation was rated as high (M=3.69), with the school environment scoring highest (M=3.77). Conversely, the expected situation was rated very high (M=4.52), revealing significant gaps in student factors ($PNI_{Modified}$=0.24) and teacher fa ctors ($PNI_{Modified}$=0.23), identified as critical areas for development, (2) the development of educational management strategies was formulated across 8 aspects, encompassing 49 supporting projects, and (3) expert evaluations indicated the strategies had extremely high feasibility (M=4.71) and adaptability (M=4.59), underscoring their practical applicability.

Key words: Educational Management Strategies, Students' Sustainable Learning Ability, Higher Vocational Colleges

INTRODUCTION

In the 21st century, the ability to engage in sustainable learning is pivotal for individual growth, organizational innovation, and societal progress. Particularly in China, where human capital is a cornerstone of sustainable development, equipping students with the skills to learn continuously and adapt to an ever-changing environment is essential (Xiang, 2010). Higher vocational education, as a vital contributor to workforce development, faces an urgent need to cultivate students› sustainable learning ability skills that enable lifelong adaptability, problem-solving, and self-directed learning to meet evolving societal and technological demands (Chen, 2023; Shi, 2018).

Sustainable learning emphasizes self-directed, inquiry-based learning supported by cognitive strategies essential for lifelong education (Shan, 2011). The United Nations Educational, Scientific and Cultural Organization (UNESCO) underscores the role of sustainable learning in fostering self-efficacy, achieving educational goals, and driving social advancement. However, challenges persist in higher vocational education in China, where many students lack intrinsic motivation, active learning opportunities, and essential cognitive skills. This highlights the pressing need for well-designed educational management strategies to bridge these gaps. The rapid pace of technological and social changes demands that vocational students acquire sustainable learning ability to remain competitive. These abilities are critical not only for enhancing vocational competencies but also for supporting broader personal development. Nevertheless, current educational practices in vocational colleges often fall short. Structural gaps in the school environment, outdated teaching methodologies, and student attitudes further exacerbate the issue:

- *School Environment:* Many vocational institutions operate in resource-constrained settings, with insufficient

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infrastructure and limited technological tools to support independent and inquiry-based learning. Teacher-centered approaches dominate, reducing opportunities for active engagement and critical thinking (Shi, 2018).

- *Teachers:* Traditional teaching methods, often prevalent in vocational education, fail to encourage creativity, problem-solving, and long-term adaptability. Furthermore, insufficient training in modern pedagogical strategies prevents teachers from adequately supporting lifelong learning (Chen, 2023).
- *Students:* Many students regard vocational education merely as a means to secure employment, neglecting its potential to serve as a foundation for lifelong learning. This mindset limits their motivation to engage in continuous learning and develop critical thinking and self-directed learning skills (Shan, 2011).

In light of these challenges, the development of effective educational management strategies to enhance students' sustainable learning ability in higher vocational colleges is an urgent priority. In the context of Guangdong Province, where vocational education plays a pivotal role in supporting economic growth, such strategies must address systemic weaknesses and promote an environment conducive to lifelong learning. By doing so, vocational education can better align with the demands of modern society and contribute to sustainable development.

While the importance of sustainable learning ability in vocational education has been widely acknowledged, existing research primarily focuses on theoretical frameworks or isolated case studies. There is a significant lack of comprehensive studies that systematically address the interplay between school environments, teacher methodologies, and student factors in fostering sustainable learning. Moreover, despite governmental efforts to support vocational education in China, practical strategies for implementing sustainable learning frameworks in higher vocational colleges remain underdeveloped. Previous studies often highlight the challenges of outdated teaching methods, insufficient resources, and limited student motivation, but few offer actionable, evidence-based strategies tailored to the unique socio-economic and cultural context of Guangdong Province. This study seeks to bridge this gap by developing and evaluating targeted educational management strategies that align with the evolving needs of students and the demands of a rapidly changing labor market.

Research Objectives

1. To study the current and expected situations of students' sustainable learning ability in higher vocational colleges in Guangdong Province.
2. To develop educational management strategies to improve the students' sustainable learning ability in higher vocational colleges in Guangdong Province.
3. To explore the adaptability and feasibility of the educational management strategies to improve the students' sustainable learning ability in higher vocational colleges in Guangdong Province.

Research Questions

Based on the objective above, the following research questions were posed:

1. What are the current and expected situations of students' sustainable learning ability in higher vocational colleges in Guangdong Province?
2. How can the educational management strategies improve the students' sustainable learning ability in higher vocational colleges in Guangdong Province?
3. What is the level of the adaptability and feasibility of the educational management strategies to improve students' sustainable learning ability in higher vocational colleges in Guangdong Province?

LITERATURE REVIEW

Educational Management Strategies

Educational management strategies serve as critical tools for achieving educational objectives and enhancing quality. According to Li (2023), these strategies represent tailored action plans devised by administrators in response to specific educational contexts, highlights the need for comprehensive environmental analysis and flexible strategies to address dynamic educational conditions, emphasizing resource allocation, human resource management, and the integration of curriculum reforms. Liu (2008) and Jin (2023) underline principles like goal orientation, systematic optimization, and continuous improvement in strategy development. Implementation involves steps such as clarifying goals, analyzing current conditions, and leveraging feedback for refinement. Methods like SWOT and PEST analyses are also essential in shaping strategic approaches (Aguilar, 1967; Andrews, 1971).

Sustainable Learning Ability

Sustainable development is a multidimensional concept encompassing economic, social, and ecological dimensions. It aims to meet present needs without compromising the ability of future generations to fulfill their needs, promoting economic prosperity, social equity, and ecological integrity (Zhang, 2018). This principle, endorsed globally, demands integrated strategies that balance innovation, cooperation, and resource preservation to ensure long-term societal well-being and environmental health (Xi, 2020).

Theories of Sustainable Learning Ability

Sustainable learning ability refers to the capacity to acquire, apply, and adapt knowledge continuously over a lifetime, emphasizing self-directed and inquiry-based approaches. Key theories underline cognitive development, self-efficacy, and lifelong adaptability. Bandura's theory of self-efficacy highlights the role of confidence in one's ability to learn and adapt (Bandura, 1997). Kolb's experiential learning theory emphasizes learning through experience, reflection, and application, which supports lifelong learning (Kolb, 1984). Vygotsky's sociocultural theory underscores the importance

of social interaction and scaffolding in developing higher-order thinking skills, critical for sustainable learning (Vygotsky, 1978). These theories collectively inform educational strategies that foster lifelong adaptability and critical thinking in students.

Although sustainable learning ability for vocational education students in China are crucial and necessary, with the government supporting policies in various areas, there remain gaps in developing sustainable learning ability in vocational education students in China. These gaps can be observed in three main aspects: school environment, teachers, and students themselves.

School Environment: Many vocational institutions lack sufficient infrastructure, resources, and a supportive atmosphere for independent and inquiry-based learning. Classrooms are predominantly teacher-centered, limiting opportunities for active engagement and critical thinking. The absence of modern technological tools further hinders students' capacity for self-directed learning (Shi, 2018).

Teachers: Vocational educators often rely on traditional teaching methods, which are not conducive to developing long-term learning skills such as critical thinking, creativity, and problem-solving. Additionally, inadequate training in modern teaching strategies prevents teachers from fostering lifelong learning and adaptability in students (Chen, 2023).

Students: Many students perceive education as merely a pathway to employment rather than a foundation for lifelong learning. This mindset reduces their motivation for continuous learning, essential for navigating evolving societal and technological landscapes. Furthermore, students frequently lack critical thinking and self-directed learning skills, impeding their sustainable learning ability (Shan, 2011).

Higher Vocational Colleges and their Teaching Management

Higher vocational colleges, a critical component of China's higher education system, focus on cultivating applied and technical talents to meet societal and economic demands. These institutions typically offer three-year programs emphasizing professional skills, practical ability, and innovation to produce workforce-ready graduates. Teaching management in higher vocational colleges requires aligning curriculum design with industry needs, fostering school-enterprise collaboration, and leveraging modern technology for efficiency and quality improvement (Cai, 2017; Lai, 2021). Furthermore, students in these institutions are characterized by their strong practical abilities, professional ethics, and adaptability to workplace challenges (Chen & Kong, 2019; Wu, 2024).

Relevant Research

The study of educational management strategies to enhance sustainable learning ability in higher vocational colleges and universities, particularly in Guangdong Province, has been explored through various approaches. Xu (2006) emphasized fostering lifelong learning attitudes through vocational ethics, mental health education, and innovation in conducive environments. Yang (2014) focused on reconstructing accounting curricula to enhance basic, professional, and innovative learning competencies, with an emphasis on evaluation and program implementation. Hu and Chen (2014) introduced the "5C" model (confidence, ability, creativity, continuous learning, and career planning) to promote holistic student development. Hao (2017) focused on cultivating independent English learning ability by addressing motivation, goals, and teaching methods. Sun and Li (2020) explored factors influencing independent learning and proposed strategies to prepare students for academic and career challenges. Wang and Wang (2024) advocated for systematic self-learning design, problem-driven motivation, and reflective practices in response to new curriculum reforms. Li and Liu (2023) examined the role of digital platforms in enhancing independent learning, suggesting the optimization of curricula, teaching methods, and evaluation mechanisms. In conclusion, researchers agree on the importance of enhancing sustainable learning ability and suggest comprehensive strategies to align students' skills with societal and economic needs.

Based on the review of documents and related research, the research framework can be summarized as in Figure 1.

RESEARCH METHODOLOGY

Research Design

This study utilized a mixed-methods research design to enhance students' sustainable learning ability in higher vocational colleges in Guangdong Province. It involved three stages. First, the current and expected states of students' sustainable learning ability were assessed through document reviews, in-depth interviews with eight experts, and surveys of 384 students from four colleges, using validated instruments and a five-point Likert scale. Second, educational management strategies were developed using SWOT analysis, a TOWS matrix, and focus group discussions with eight experts. Third, the strategies' suitability and feasibility were evaluated by five experts using a Likert scale. Data were analyzed with descriptive statistics and the Modified Priority Needs Index ($PNI_{Modified}$) to ensure comprehensive and actionable findings.

The Population

The population for this study consisted of students enrolled in higher vocational colleges in Guangdong Province, China. Guangdong Province, known for its significant economic development and industrial diversity, is home to 93 higher vocational colleges, hosting approximately 1.254 million students and 50,000 staff members. These institutions cater to a wide range of disciplines, emphasizing practical skills and workforce readiness.This study employs a mixed-method approach, incorporating qualitative research through field studies with in-depth interviews and focus groups, as well as quantitative research through survey methods. Population and Sampling: Guangdong Province includes 93 higher vocational colleges with 1.254 million students

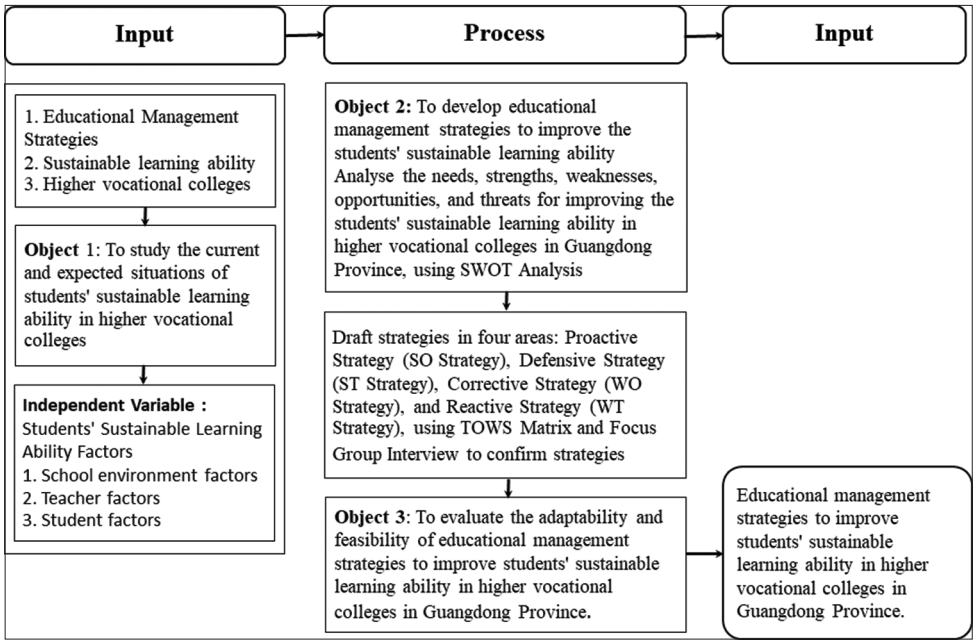

Figure 1. Summarize the research framework

and approximately 50,000 staff. A purposive sample of 384 students from four colleges representing the province's regions (Pearl River Delta, Eastern, Western, and Northern Guangdong) was selected. The sample size, 5% of the population, was determined using Krejcie and Morgan's (1970).

Research Procedure

The research process is divided into three main steps:

Stage 1: **Study the current and expected situation of students' sustainable learning ability in higher vocational colleges in Guangdong Province**

The involvement was conducted research in three substeps as follows:

1. Document Review

The researchers conducted a comprehensive review of documents, publications, electronic media, and research studies to analyze the current and desired states of students' sustainable learning ability in higher vocational colleges in Guangdong Province. Content analysis was used to extract key insights.

2. In-depth Interviews

To explore the factors influencing students' sustainable learning ability, in-depth interviews were conducted with eight purposively sampled experts, including teachers and teaching administrators from four higher education institutions. Selection criteria included: At least five years of institutional experience, Knowledge of institutional development plans, teaching management, and student development, Willingness to participate in structured, recorded interviews.

3. Research Instrument

An interview form and a questionnaire were used for collecting the data.

Interview Form

The interview form was designed based on the research framework, comprised:

Part 1: Basic Information-Demographics of respondents.
Part 2: Key Topics-Perspectives on factors influencing sustainable learning ability.
Part 3: Additional Suggestions-Open-ended questions for further recommendations.

The interview form was validated by the dissertation chair and advisory committee to ensure accuracy and completeness.

Questionnaire

The questionnaire was also used to survey opinions on the current and expected situations of students' sustainable learning ability. The questionnaire was developed based on the research framework. It was validated for content by five experts using the Index of Item-Objective Congruence (IOC), with values ranging from 0.60 to 1.00. A pilot test showed a discrimination power between 0.42 and 0.89 and a reliability score of 0.88.

The questionnaire consisted of the following parts:

Part 1: Demographic information (gender, age, education, professional background).
Part 2: Assessment of the current and expected situations of students' sustainable learning ability in Guangdong Province, focusing on three aspects: (i) School environment, (ii) Teachers, and (iii) Students.

4. Data Collection and Analysis

Interviews were scheduled at convenient times, recorded, and analyzed using content analysis to identify trends and summarize the current and expected situations regarding sustainable learning ability in Guangdong's higher vocational colleges.

5. Population and Sampling

Guangdong Province includes 93 higher vocational colleges with 1.254 million students and approximately 50,000 staff. A purposive sample of 384 students from four colleges representing the province's regions (Pearl River Delta,

Eastern, Western, and Northern Guangdong) was selected. The sample size, 5% of the population, was determined using Krejcie and Morgan's (1970)

6. Data Collection

A letter of request from the Graduate School of Bansomdejchaopraya Rajabhat University was submitted to collect data from 384 students across four higher vocational colleges in Guangdong Province.

7. Data Interpretation and Analysis

The data were analyzed using a five-point Likert scale, with scores ranging from 1 (lowest) to 5 (highest). The interpretation follows Best's (1984) criteria:

4.51–5.00: Highest level
3.51–4.50: High level
2.51–3.50: Moderate level
1.51–2.50: Low level
1.00–1.50: Lowest level

Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to analyze the demographic variables and the current and expected situations of students' sustainable learning ability. The Modified Priority Needs Index ($PNI_{Modified}$). To identify the necessary needs using the $PNI_{Modified}$ formula (Wongwanich, 2005), we used the following formula:

$PNI_{Modified} = (I - D)/D$

Where: I refers to the expected condition of students' sustainable learning ability

D refers to the current condition of students' sustainable learning ability

Stage 2: Develop Educational Management Strategies to Improve Students' Sustainable Learning Ability in Higher Vocational Colleges

The process involves drafting strategies by analyzing weaknesses, strengths, threats or obstacles, and opportunities to improve students' sustainable learning ability in higher vocational colleges in Guangdong Province. Data were analyzed by calculating the $PNI_{Modified}$ value, and the drafted strategies were reviewed and refined by experts. A group of 12 experts, each knowledgeable and experienced in strategy and the development of students' sustainable learning ability, conducted a focus group discussion to exchange opinions on the suitability of each aspect of the strategies.

1. Target Group

The target group for developing strategies to improve students' sustainable learning in higher education institutions included 4 full-time teachers and 4 instructional administrators from four institutions. The teachers and administrators had to meet the following criteria: 1) more than five years of experience at the institution, and 2) familiarity with the school's development plan, teaching management, and student development. Additionally, 4 experts with over 15 years of experience, senior titles, and leadership roles in higher education were selected for their expertise in strategy formulation, sustainable development, and students' sustainable learning ability.

2. Data Collection Process for objective 2

The development process is divided into four steps as follows:

2.1 Analysis of Needs, Strengths, and Weaknesses

Conduct an analysis to identify the strengths, weaknesses, and essential needs for improving students' sustainable learning ability in higher vocational colleges in Guangdong Province.

2.2 Analysis of Opportunities and Threats

Examine the opportunities and threats related to improving students' sustainable learning ability in higher vocational colleges in Guangdong Province.

2.3 Drafting Educational Management Strategies

Utilize the findings from steps 2.1 and 2.2 to draft the educational management strategies. This involves:

- Conducting a SWOT Analysis based on strengths, weaknesses, opportunities, and threats.
- Developing a TOWS Matrix.
- Presenting the draft strategies to the dissertation advisor and committee members for review and approval of their appropriateness.

2.4 Developing the Educational Management Strategies

Conduct a Focus Group Discussion with eight experts selected through purposive sampling. Analyze the data using Content Analysis to refine and finalize the educational management strategies aimed at improving students' sustainable learning ability in higher vocational colleges in Guangdong Province.

Stage 3. Evaluate the suitability and feasibility of educational management strategies to improve the students' sustainable learning ability in higher vocational colleges

1. Research Instrument

The instrument consisted of the following parts:

1. Target Group for evaluation Strategies

The evaluation of the integration strategy of production and education involved five experts from the Shenzhen Institute of Vocational Technology and Heyuan Institute of Vocational Technology. These experts significantly influence strategy formulation, sustainable development, student learning ability, talent cultivation, and education management in higher vocational institutions. The experts' qualifications include: (i) Over 15 years of work experience, (ii) Senior professional titles, and (iii) Leadership positions at senior levels.

2. Evaluation Form

The evaluation employed a five-point Likert scale: "Very High," "High," "Medium," "Low," and "Very Low." The evaluation form was designed to collect data for Objective 3 and assess the suitability and feasibility of educational management strategies to enhance students' sustainable learning ability in higher vocational institutions. Five experts from Shenzhen Vocational and Technical University and Heyuan Vocational and Technical College participated in the evaluation. The evaluation form consists of two parts: (i) Expert Information: Includes work position, work experience, educational background, and academic title. (ii) Strategy Evaluation: Focuses on assessing the educational management strategies to improve the students' sustainable learning ability in higher vocational colleges in Guangdong Province. The criteria for interpretation follow a five-point Likert scale:

5: Highest adaptability and feasibility
4: High adaptability and feasibility
3: Moderate adaptability and feasibility
2: Low adaptability and feasibility
1: Lowest adaptability and feasibility

The average values were interpreted as:
4.50–5.00: Highest level
3.50–4.49: High level
2.50–3.49: Moderate level
1.50–2.49: Low level
1.00–1.49: Lowest level

3. Data Collection

The data collection for Aim 3, which evaluates the suitability and feasibility of educational management strategies to enhance students' sustainable learning ability in higher vocational colleges in Guangdong Province, was conducted as follows:

3.1 Requesting Expert Evaluation

The researcher obtained a formal letter from the Graduate School of Bansomdejchaopraya Rajabhat University to invite five experts from Shenzhen University of Vocational Technology and Heyuan Institute of Vocational Technology to participate in the evaluation.

3.2 Distribution of Evaluation Forms

Evaluation forms were distributed to the five experts. The researcher coordinated a suitable time and place to provide instructions, ensured the experts completed the forms, and collected all forms with a 100% response rate.

3.3 Expert Assessment

The experts completed the evaluation forms based on the provided criteria.

4. Data Analysis

The researchers summarized and analyzed the evaluation results to assess the strategies' adaptability and feasibility.

RESEARCH RESULTS

Current and Expected Situations of Students' Sustainable Learning Ability

The results of examining the current and expected situations of students' sustainable learning ability in higher vocational colleges in Guangdong Province are summarized in Tables 1 and 2.

Demographics

The analysis of respondents' personal information is summarized in Table 1. An examination of the sample demographics, as presented in Table 1, reveals a balanced distribution across key variables, including school, gender, and academic year. The study included a total of 384 respondents. The largest group comprised students from Shenzhen Vocational and Technical University, accounting for 42.70% (164 individuals), followed by Maoming Vocational and Technical College and Heyuan Vocational and Technical College, each contributing 22.40% (86 individuals). In terms of gender, the majority of respondents were female, representing 41.40% (159 individuals). Regarding academic year distribution, first-year students constituted the largest proportion at 38.50% (148 individuals), followed by second-year students at 33.30% (128 individuals), and third-year students at 28.10% (108 individuals).

The results of the first research objective, to examine the current and expected situations of students' sustainable learning ability in higher vocational colleges in Guangdong Province are presented in Table 2.

According to Table 2, the sustainable learning ability of students in higher vocational colleges in Guangdong Province are influenced by three key factors: school environment, teacher, and student factors. The current state of these ability was rated as high, with an overall mean score of 3.69. Among

Table 1. Analysis of the personal information and participants

Personal Information		Frequency	Percentage
Total		**384**	**100**
1. School:	1. Shenzhen Vocational and Technical University	164	42.70
	2. Shanwei Vocational and Technical College	48	12.50
	3. Maoming Vocational and Technical College	86	22.40
	4. Heyuan Vocational and Technical College	86	22.40
2. Gender:	1. Male	159	41.40
	2. Female	225	58.60
3. Grade:	1. First year of university	148	38.50
	2. Second year of university	128	33.30
	3. Third year of university	108	28.10

Table 2. Current situation and expected situation of students' sustainable learning ability

Students' sustainable learning ability	Current Situation		Expected condition				PNI	Rank
	M	*SD*	Level	*M*	*SD*	Level		
1. School environment factors	3.77	0.62	High	4.53	0.48	Highest	0.20	3
2. Teacher factors	3.67	0.64	High	4.51	0.52	Highest	0.23	2
3. Student factors	3.64	0.48	High	4.51	0.43	Highest	0.24	1
Total of all factors	3.69	0.49	High	4.52	0.39	Highest	0.22	

the factors, the school environment had the highest mean score (3.77), while student factors had the lowest (3.64).

In the expected state, the sustainable learning ability were rated higher, with an overall mean score of 4.52. The school environment again scored the highest (4.53), followed by teacher and student factors, both with a mean score of 4.51. The Modified Priority Needs Index ($PNI_{Modified}$) for these ability was calculated as 0.22, with student factors showing the highest $PNI_{Modified}$ value (0.24), followed by teacher factors (0.23), and school environment factors (0.20).

These findings identify student and teacher factors as weaknesses requiring strategic improvement, while the school environment is recognized as a strength to be reinforced. The results provide essential insights for drafting educational management strategies aimed at enhancing students' sustainable learning ability in higher vocational colleges in Guangdong Province.

Developing Educational Management Strategies

Drafting the Educational Management Strategies to Improve Students' Sustainable Learning Ability in Higher Vocational Colleges in Guangdong Province. The process begins with an analysis using the TOWS Matrix, The results of the TOWS Matrix analysis are then used to draft the educational management strategies aimed at improving students' sustainable learning ability. This process integrates the analysis of internal and external environments, as well as content analysis from questionnaires assessing the current situation and expected situation of students' sustainable learning ability in higher vocational colleges in Guangdong Province, Subsequently, the strategies are reviewed for suitability by experts through a Focus Group Discussion (Table 3).

According to Table 3, the draft educational management strategies to improve students' sustainable learning ability in

Table 3. Strategic analysis data using the TOWS matrix

	Strategy: S S1: Schools should offer diverse learning resources and tools, including libraries, equipment, networks, online platforms, and field trips, to cater to students' varied learning needs and preferences. S2: Teachers should use diverse evaluation methods, provide timely feedback, and foster a supportive and collaborative environment to build trust, respect, and effective teacher-student relationships. S3: Students should think independently, dare to question, and critically analyze to form their own opinions and judgments.	**Weakness :W** W1: The school should integrate community learning resources to effectively enhance the quality of students' education. W2: Teachers should adopt diverse teaching methods and strengthen teamwork to enhance students' interest and ability in independent learning W3: Students should overcome the difficulties and setbacks in the learning process, persevere in learning, actively seek help, and constantly improve their learning ability.
Opportunity : O O1: The state provides policy support for vocational education, which helps schools strengthen education management and enhance students' sustainable independent learning ability. O2: The shortage of skilled personnel in society and the broad employment prospects of students help to motivate students' sustainable independent learning ability. O3: The progress of science and technology brings more new teaching equipment and teaching methods, which helps schools to cultivate students' sustainable independent learning ability.	**SO Strategy** 1. Innovative Learning Ecosystem Strategy 2. Empowered Teaching and Learning Strategy 3. Policy-Driven Critical Thinking Development Strategy	**WO Strategy** 1. Collaborative Vocational Education Enhancement Strategy 2. Integrated Teaching and Policy Advancement Strategy 3. Technology-Driven Resilience Enhancement Strategy
Threat: T T1 Increasing competition in the market increases the pressure on schools to enhance students' sustainable independent learning ability. T2 Higher vocational colleges and universities are affected by the lack of student sources, which affects the quality of education in schools and the sustainable independent learning ability of students. T3 The continuous change of science and technology has put forward new challenges to the cultivation of students' sustainable independent learning ability.	**ST Strategy** 1. Future-Ready Learning Ecosystem Strategy. 2. Resilient Teaching and Feedback Strategy 3. Dynamic Teaching and Feedback Strategy	**WT Strategy** 1. Community-Engaged Education Enhancement Strategy 2. Resilient Teaching and Feedback Strategy 3. Dynamic Teaching and Feedback Strategy

higher vocational colleges in Guangdong Province include the following:

- Proactive Strategies (SO**)**: A combination of Strengths (S) and Opportunities (O), comprising 3 strategies and 4 proposed projects to support the strategies
- Corrective Strategies (WO): A combination of Weaknesses (W) and Opportunities (O), comprising 3 strategies and 4 proposed projects to support the strategies.
- Defensive Strategies (ST): A combination of Strengths (S) and Threats (T), comprising 3 strategies and 4 proposed projects to support the strategies.
- Defensive Strategies (WT): A combination of Weaknesses (W) and Threats (T), comprising 3 strategies and 4 proposed projects to support the strategies.

The details are presented in Table 4.

Adaptability and Feasibility of the Educational Management Strategies

The educational management strategy for improving students' sustainable learning ability in higher vocational colleges and universities in Guangdong Province is divided into 12 Strategy and contains 48 Proposed Projects to Support

Table 4. Educational management strategies using TOWS matrix analysis

	Opportunities	**Threats**
Strengths	**SO Strategy** **1. Innovative Learning Ecosystem Strategy** Proposed Projects to Support the Strategy: 1.1 Smart Learning Ecosystem Development Project 1.2 Policy-Driven Vocational Education Enhancement Program 1.3 Learning Resources Optimization Initiative 1.4 Teacher Innovation Training Program **2. Empowered Teaching and Learning Strategy** Proposed Projects to Support the Strategy: 2.1 Digital Evaluation and Feedback System Development Project 2.2 Tech-Driven Collaborative Teaching Program 2.3 Smart Classroom Implementation Initiative\ 2.4 Innovative Teaching Practices Workshop **3. Policy-Driven Critical Thinking Development Strategy** Proposed Projects to Support the Strategy: 3.1 Vocational Critical Thinking Curriculum Enhancement Program 3.2 Independent Learning and Judgment Workshop Series 3.3 Policy-Supported Vocational Learning Labs 3.4 Critical Thinking Mentorship Program	**ST Strategy** **1. Future-Ready Learning Ecosystem Strategy** Proposed Projects to Support the Strategy: 1.1 Inclusive Learning Resource Access Initiative 1.2 Collaborative Recruitment and Outreach Program 1.3 Quality Assurance and Retention Enhancement Project 1.4 Resource-Based Learning Campaign **2. Resilient Teaching and Feedback Strategy** Proposed Projects to Support the Strategy: 2.1 Continuous Professional Development Program for Teachers 2.2 Dynamic Assessment and Feedback System Initiative 2.3 Teacher-Student Collaboration Enhancement Project 2.4 Technology-Adaptive Teaching Practices Workshop **3. Dynamic Teaching and Feedback Strategy** Proposed Projects to Support the Strategy: 3.1 Independent Thinking and Market Awareness Program 3.2 Competitive Edge Learning Modules 3.3 Industry Collaboration and Internship Program 3.4 Student-Centered Learning Enhancement Project
Weaknesses	**WO Strategy** **1. Collaborative Vocational Education Enhancement Strategy** Proposed Projects to Support the Strategy: 1.1 Community Learning Resource Partnership Program 1.2 Policy-Driven Community Engagement Initiative 1.3 Vocational Skill Development and Community Internship Program 1.4 Community-Based Education Resource Hub **2. Integrated Teaching and Policy Advancement Strategy** Proposed Projects to Support the Strategy: 2.1 Diverse Teaching Methods Training Program 2.2 Team-Based Teaching Innovation Initiative 2.3 Policy-Driven Teaching Collaboration Network 2.4 Student-Centered Learning Projects **3. Technology-Driven Resilience Enhancement Strategy** Proposed Projects to Support the Strategy: 3.1 Resilience and Perseverance Development Program 3.2 Tech-Integrated Learning Support Network 3.3 Adaptive Learning Tools Implementation 3.4 Mentorship and Motivation Campaign	**WT Strategy** **1. Community-Engaged Education Enhancement Strategy** Proposed Projects to Support the Strategy: 1.1 Community Outreach and Resource Sharing Program 1.2 Targeted Recruitment Campaigns 1.3 Community-Based Learning and Internship Initiative 1.4 Educational Resource Hub Development **2. Innovative Teaching and Collaboration Strategy** Proposed Projects to Support the Strategy: 2.1 Teacher Training on Emerging Technologies Program 2.2 Collaborative Teaching Innovation Workshops 2.3 Technology-Enhanced Independent Learning Support System 2.4 Cross-Disciplinary Team Teaching Initiatives **3. Resilience and Market-Ready Learning Strategy** Proposed Projects to Support the Strategy: 3.1 Resilience-Building Support Program 3.2 Career and Competency Development Workshops 3.3 Individualized Learning Support Network 3.4 Student Engagement and Motivation Campaign

the Strategy. A total of 8 experts were invited to evaluate the adaptability and feasibility of the educational management strategies for improving students' sustainable learning ability in higher vocational institutions in Guangdong Province. The data of the analyzed results are expressed in the form of mean and standard deviation, as shown in Table 5.

According to Table 5, the data show that the experts' overall evaluation of the adaptability and feasibility of the strategy is very high. The overall evaluation of feasibility is the highest ($M = 4.71$), while the overall evaluation of adaptability is also at a very high level ($M = 4.59$), indicating that the strategy demonstrates both high adaptability and feasibility.

DISCUSSION

Current and Expected Situations of Students' Sustainable Learning Ability

The findings of this study provide valuable insights into the current and expected situations of students' sustainable learning abilities in higher vocational colleges in Guangdong Province. These abilities were categorized into three primary components: school environment factors, teacher factors, and student factors. Each component is integral to fostering sustainable learning and exhibits distinct strengths and areas for improvement.

School environment factors

The study revealed that school environment factors significantly contribute to sustainable learning. The availability of diverse resources, such as libraries, networks, online platforms, and field trips, aligns with the findings of Kim et al. (2019), who emphasized the role of varied resources in creating an inclusive learning environment. Similarly, Zhang and Li (2020) highlighted the advantages of integrating multiple learning modalities to enhance student engagement. Despite these strengths, a critical gap exists in the utilization of community-based learning resources. Liu et al. (2018) suggest that community partnerships could bridge the divide between theoretical knowledge and practical applications. Addressing this gap requires schools to strengthen collaboration with local businesses, cultural institutions, and NGOs to provide practical exposure for students.

Teacher factors

Teacher factors emerged as a critical area requiring urgent attention. While strengths such as the use of diverse evaluation methods, timely feedback, and fostering safe teacher-student relationships were noted, significant weaknesses persist. The limited adoption of innovative teaching strategies, such as flipped classrooms and blended learning, and insufficient teacher collaboration were identified as pressing concerns. These findings corroborate Li and Wang's (2021a) assertion that innovative strategies enhance student engagement and autonomy. Johnson and Taylor (2020) further underscored the importance of teacher collaboration in promoting self-directed learning. Addressing these weaknesses calls for professional development programs focused

Table 5. Evaluation of adaptability and feasibility of the educational management strategies

Assessment checklist	Adaptability			Feasibility		
	M	*SD*	Level	*M*	*SD*	Level
SO Strategy						
1. Innovative Learning Ecosystem Strategy	4.88	0.35	highest	4.75	0.46	highest
2. Empowered Teaching and Learning Strategy	4.38	0.52	high	4.25	0.46	high
3. Policy-Driven Critical Thinking Development Strategy	4.75	0.46	highest	4.75	0.46	highest
Total aspects 1	4.67	0.44	highest	4.58	0.46	highest
ST Strategy						
1. Future-Ready Learning Ecosystem Strategy	4.75	0.46	highest	4.63	0.52	highest
2. Resilient Teaching and Feedback Strategy	4.88	0.35	highest	4.63	0.52	highest
3. Dynamic Teaching and Feedback Strategy	4.88	0.35	highest	4.63	0.52	highest
Total aspects 2	4.84	0.39	highest	4.63	0.52	highest
WO Strategy						
1. Collaborative Vocational Education Enhancement Strategy	4.13	0.35	high	4.13	0.35	high
2. Integrated Teaching and Policy Advancement Strategy	4.75	0.46	highest	4.63	0.52	highest
3. Technology-Driven Resilience Enhancement Strategy	5.00	0.00	highest	4.88	0.35	highest
Total aspects 3	4.63	0.27	highest	4.55	0.41	highest
WT Strategy						
1. Community-Engaged Education Enhancement Strategy	4.63	0.52	highest	4.63	0.52	highest
2. Innovative Teaching and Collaboration Strategy	4.75	0.46	highest	4.50	0.54	highest
3. Resilience and Market-Ready Learning Strategy	4.75	0.46	highest	4.63	0.52	highest
Total aspects 4	4.71	0.48	highest	4.59	0.53	highest
Total all aspects	4.71	0.40	highest	4.59	0.48	highest

on equipping teachers with innovative pedagogical tools and fostering collaborative practices through workshops and training sessions.

Student factors

Student factors were identified as the most significant weakness, with a Priority Needs Index (PNIModified = 0.24), highlighting their critical role in sustainable learning. Students exhibited strong critical thinking and independent judgment skills, consistent with the observations of Brown et al. (2020). However, their resilience, help-seeking behaviors, and ability to overcome challenges were notably weak. Johnson and Lee (2019) emphasized resilience as a key attribute for navigating academic challenges. To address these issues, resilience development programs and peer mentoring systems should be implemented to build emotional strength and mutual support among students. Additionally, fostering critical thinking through curriculum-integrated activities and providing personalized feedback can further enhance students' self-improvement efforts.

Developing Educational Management Strategies to Improve the Students' Sustainable Learning Ability

The development of educational management strategies to improve students' sustainable learning ability in higher vocational colleges in Guangdong Province provides a comprehensive framework for addressing both internal weaknesses and external challenges. The strategies, categorized as SO (proactive), ST (defensive), WO (corrective), and WT (mitigative), are aimed at leveraging institutional strengths, harnessing external opportunities, and addressing systemic challenges.

Proactive strategies (SO strategies)

The proactive strategies aim to capitalize on the inherent strengths of higher vocational colleges while leveraging external opportunities, such as advancements in technology and supportive government policies.

Innovative learning ecosystem strategy

This strategy integrates diverse resources like libraries, online platforms, and technology to establish a dynamic learning environment. Research by Kim et al. (2019) emphasizes that inclusive learning environments benefit from varied resources, while Zhang and Li (2020) underline the importance of technological integration in promoting sustainable learning.

Outcome: A robust and inclusive ecosystem facilitates personalized learning pathways, aligning with the demands of 21st-century education.

Empowered teaching and learning strategy

This strategy equips educators with innovative methods, such as flipped classrooms and blended learning, while fostering collaboration between teachers and students. Li and Wang (2021a) highlighted the importance of such teaching strategies in enhancing engagement and autonomy, and Johnson and Taylor (2020) emphasized the role of teacher collaboration.

Outcome: This strategy ensures modernized teaching-learning dynamics that adapt to evolving educational challenges.

Policy-driven critical thinking development strategy

By aligning institutional practices with government policies, this strategy fosters critical thinking and problem-solving skills. Liu et al. (2018) and Brown et al. (2020) identified critical thinking as essential for career readiness and emphasized the value of policy alignment. As a result of this,

Outcome: Students develop enhanced market competitiveness and are better prepared academically and professionally.

Defensive strategies (ST Strategies)

The defensive strategies are designed to mitigate external threats while reinforcing institutional capabilities.

Future-ready learning ecosystem strategy

By integrating advanced technology and modern infrastructure, this strategy prepares students for future challenges. Zhang and Li (2020) highlighted the role of technology in equipping students with future-ready skills, while Kim et al. (2019) emphasized the adaptability fostered by diverse learning environments.

Outcome: Students develop skills that align with rapidly changing market demands, enhancing their employability.

Resilient teaching and feedback strategy

This strategy focuses on developing teaching methods and real-time feedback mechanisms to build student resilience. Johnson and Taylor (2020) emphasized the importance of feedback in fostering resilience, while Li and Wang (2021a) discussed adaptive teaching methods.

Outcome: Students thrive under external pressures, gaining resilience and adaptability in both academic and professional contexts.

Dynamic teaching and feedback strategy

Addressing external threats like technological disruptions, this strategy emphasizes adaptive teaching and continuous assessment. Liu et al. (2018) and Brown et al. (2020) noted the importance of dynamic feedback in enhancing critical thinking and adaptability.

Outcome: Institutions maintain high educational standards despite external challenges through a flexible and responsive framework.

Corrective strategies (WO strategies)

The corrective strategies leverage external opportunities to address institutional weaknesses, particularly in resource allocation and pedagogical diversity.

Collaborative vocational education enhancement strategy

This strategy strengthens partnerships with local industries and organizations to address resource gaps and improve practical learning. Zhang and Li (2020) and Kim et al. (2019) emphasized the benefits of industry collaboration and external partnerships.

Outcome: Students gain practical skills, enhanced learning environments, and stronger industry connections.

Integrated teaching and policy advancement strategy

By aligning teaching practices with supportive government policies, this strategy addresses gaps in teaching diversity and collaboration. Liu et al. (2018) and Li and Wang (2021b) noted the importance of policy-driven reforms in improving pedagogical practices.

Outcome: Institutions implement innovative teaching methods and align their goals with government priorities, fostering better learning outcomes.

Technology-driven resilience enhancement strategy

This strategy integrates digital tools to improve adaptability in teaching and learning. Brown et al. (2020) and Johnson and Taylor (2020) emphasized technology's role in fostering adaptive learning environments.

Outcome: A technologically advanced ecosystem that supports self-directed learning and resilience development.

Mitigative strategies (WT strategies)

The mitigative strategies focus on addressing institutional weaknesses while counteracting external threats.

Community-engaged education enhancement strategy

By collaborating with local organizations, this strategy overcomes resource limitations and fosters experiential learning. Liu et al. (2018) and Zhang and Li (2020) highlighted the benefits of community partnerships in enriching learning environments.

Outcome: A community-integrated approach enhances resource availability and practical exposure for students.

Innovative teaching and collaboration strategy

This strategy addresses the lack of teaching adaptability and teamwork by promoting collaborative models and pedagogies like blended and problem-based learning. Li and Wang (2021b) and Johnson and Taylor (2020) highlighted the importance of diverse teaching methods and teacher collaboration.

Outcome: Improved teaching quality and collaboration empower students to tackle systemic challenges.

Resilience and market-ready learning strategy

This strategy integrates resilience-building programs and career readiness initiatives to prepare students for competitive environments. Brown et al. (2020) and Kim et al. (2019) emphasized the significance of resilience and critical thinking for student success.

Outcome: Students develop both personal growth and market-relevant skills, equipping them for real-world challenges.

Adaptability and Feasibility of the Educational Management Strategies

Results of the adaptability and feasibility of Educational Management Strategies to improve students' sustainable learning ability in Higher Vocational Colleges in Guangdong Province. The strategies were assessed by experts in the field, which included educators and administrators with significant experience in higher education. Their feedback provided insights into the practicality of the proposed strategies that received a high feasibility rating (M=4.71), indicating that experts found them practical and implementable within the current educational context. The adaptability of the strategies was also rated positively (M=4.59), suggesting that these strategies could be tailored to fit various educational settings and student needs. Overall, the educational management strategies were deemed highly adaptable and feasible. This outcome is attributed to their development through a rigorous research process that involved multiple stages. These stages included synthesizing relevant documents, academic articles, and research studies, as well as employing questionnaires to assess the current state and desired improvements in students' sustainable learning ability. The draft strategies were formulated based on these findings and subsequently refined through focus group discussions (FGDs) with experts. Recommendations and feedback gathered from the discussions were integrated to enhance the strategies, thereby increasing their reliability and relevance. Finally, the strategies underwent a thorough evaluation by experts with extensive knowledge and experience in strategy development and the enhancement of sustainable learning ability. This comprehensive approach ensured that the developed strategies are both credible and practical for real-world implementation. Studies such as those by Zhang et al. (2021) and Liu et al. (2019) emphasize the importance of expert-driven evaluation processes in ensuring the adaptability and feasibility of educational strategies. Furthermore, research by Kim and Park (2020) highlights the significance of iterative feedback and refinement processes in creating effective educational frameworks. The high levels of adaptability and feasibility achieved in this study demonstrate the strategies' potential to address the needs and challenges of sustainable learning in higher vocational institutions, aligning with national education policies and global trends in lifelong learning and skills development.

CONCLUSION

The following recommendations can be presented based on the findings of the study:

1. Recommendations for Applying Research Findings
    a. Develop Strategic Educational Policies: Utilize the findings to create policies that prioritize integrating

community learning resources and enhancing teacher training programs to address identified weaknesses and improve sustainable learning ability.

b. Implement Professional Development Programs: Design workshops and training sessions for teachers focusing on innovative teaching methods, such as flipped classrooms and blended learning, to stimulate students' interest and foster independent learning.

c. Strengthen Student Support Systems: Establish student support programs that focus on resilience-building, problem-solving skills, and access to diverse learning resources to address the challenges students face in their learning process.

2. Recommendations for Future Research

a. Explore Interventions for Weak Areas: Investigate specific strategies or interventions to address identified weaknesses, such as integrating community learning resources and adopting innovative teaching methods, to enhance sustainable learning ability.

b. Longitudinal Studies: Conduct longitudinal research to evaluate the long-term impact of improved teaching strategies, community engagement, and resilience-building initiatives on students' sustainable learning outcomes.

c. Cross-Context Comparisons: Expand the scope to compare sustainable learning ability across different provinces or educational systems, providing insights into contextual influences and best practices for broader applications.

In conclusion, the development and implementation of targeted educational management strategies are critical to fostering sustainable learning ability among students in higher vocational colleges in Guangdong Province. These strategies address both systemic weaknesses and external challenges while leveraging strengths and opportunities. By focusing on enhancing school environments, empowering teachers, and supporting students, the proposed frameworks create a pathway for lifelong learning and adaptability. The high adaptability and feasibility ratings from experts underscore the potential of these strategies to bridge existing gaps and meet the demands of modern education and labor markets. Future research can further refine these strategies, ensuring their relevance across diverse educational contexts and evolving societal needs. Ultimately, this work contributes to the broader goal of aligning vocational education with sustainable development and global educational standards.

REFERENCES

Aguilar, F. J. (1967). Scanning the Business Environment. Macmillan.

Andrews, K. R. (1971). The Concept of Corporate Strategy. Dow Jones-Irwin.

Bandura, A. (1997). Self-efficacy: The exercise of control. W.H. Freeman and Company.

Best, J. W. (1984). Research in education (4th ed.). Prentice-Hall.

Brown, J., Smith, L., & Taylor, P. (2020). Critical thinking and sustainable learning: A vocational education perspective. Educational Research Journal, *32*(4), 45-60.

Brown, R., Smith, L., & Taylor, H. (2020). Fostering Critical Thinking and Self-Reflection in Higher Education: Strategies for Long-Term Academic Success. Journal of Learning Development, *42*(4), 89-104.

Cai, F. (2017). Structural optimization and synergistic development in higher vocational education. Chinese Journal of Educational Development, *38*(5), 12–15.

Chen, Q., & Kong, J. (2019). Vocational literacy and innovation training for higher vocational students. Education and Vocation, *20*(3), 23–28.

Chen, X. (2023). Reform and Development of Higher Vocational Education in China. China Education Press.

Hao, S. (2017). Research on the cultivation of autonomous learning ability of higher vocational English students. Campus English, *20*, 66.

Hu, H., & Chen, C. (2014). Five-dimensional cultural education model for sustainable development of higher vocational students. China Vocational and Technical Education, 3, 90-96.

Jin, L. (2023). Analysis of higher education management strategies under the concept of humanistic management. Huazhang, *12*, 18–20.

Johnson, R., & Lee, M. (2019). Resilience and critical thinking: Essential skills for 21st-century education. International Journal of Education and Development, *27*(3), 112-125.

Johnson, R., & Taylor, K. (2020). Teacher collaboration and its impact on student engagement. Journal of Educational Practice, *18*(2), 76-89.

Johnson, M., & Lee, C. (2019). Resilience and Motivation in Higher Education: A Pathway to Sustainable Learning. International Journal of Educational Research, *55*(3), 67-82.

Johnson, K., & Taylor, M. (2020). Collaborative Teaching Strategies and Their Role in Enhancing Independent Learning. International Journal of Educational Innovation, *52*(3), 89-102.

Johnson, T., & Taylor, K. (2020). Teacher collaboration and its impact on student engagement. Journal of Educational Practice, *18*(2), 76-89.

Kim, J., Lee, Y., & Choi, H. (2019). The Role of Diverse Learning Resources in Higher Education. Journal of Educational Technology, *45*(2), 56-72.

Kim, J., & Park, S. (2020). Designing adaptive educational strategies for lifelong learning: A policy perspective. Journal of Educational Management, *28*(4), 305–320.

Kim, S., Park, J., & Lee, H. (2019). The role of diverse learning resources in inclusive education. Journal of Vocational Studies, *15*(5), 23-40.

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development. Prentice-Hall.

Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. Educational and Psychological Measurement, *30*(3), 607-610.

Lai, S. (2021). The informatization of teaching management in higher vocational education. Modern Education Management, *29*(7), 78–81.

Li, L., & Liu, J. (2023). The role of digital platforms in enhancing independent learning in vocational colleges. Education and Technology Review, *29*(4), 77-89.

Li, X., & Wang, Y. (2021a). Flipped classrooms and blended learning: Impacts on student engagement in vocational education. Vocational Education Research, *28*(4), 456–470.

Li, X., & Wang, Z. (2021b). Innovative teaching strategies in higher vocational education. Vocational Learning Journal, *28*(1), 89-102.

Liu, X., Chen, Y., & Wang, L. (2018). Policy-driven education reform in vocational training institutions. Education Policy Review, *14*(3), 67-84.

Liu, Y., Wang, T., & Zhang, J. (2018). Leveraging community partnerships for practical learning. Journal of Vocational Education Research, *15*(3), 45–60.

Liu, Y., Zhang, H., & Li, J. (2019). Evaluation of the feasibility of vocational education strategies: A mixed-methods approach. International Journal of Vocational Education Research, *14*(3), 215–230.

Liu, Z. (2008). Rural basic education curriculum reform: Problems and prospects. Educational Development Research, Z4, 66-71.

Shan, R. (2011). Sustainable Learning and Lifelong Adaptability. Educational Insights Journal, *9*(2), 45-57.

Shi, J. (2018). Critical challenges in vocational education: A Chinese perspective. Educational Review, *70*(1), 85–101.

Sun, L., & Li, W. (2020). Strategies for fostering independent learning in higher vocational education. Journal of Vocational Education, *15*(1), 56-72.

Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.

Wang, L., & Wang, X. (2024). Advocated for systematic self-learning design, problem-driven motivation, and reflective practices under new curriculum reforms. International Journal of Learning, *15*(1), 24–28.

Wongwanich, S. (2005). Research on needs assessment. Bangkok: Chulalongkorn University Press.

Wu, H. (2024). Characteristics of higher vocational students in China. Vocational Education Studies, *45*(1), 9–15.

Xiang, H. (2010). Human Capital and Sustainable Development in China. Shanghai: Economic and Management Publishing House.

Xu, J. (2006). Fostering lifelong learning in vocational education through ethical and mental health education. Vocational Education Journal, *18*(2), 89-102.

Yang, W. (2014). Reconstructed accounting curricula to focus on basic, professional, and innovative learning competencies, emphasizing evaluation and programmatic implementation. Education and Technology Review, *6*(2), 46-52.

Zhang, H., & Li, J. (2020). Integrating technology in vocational education: Benefits and challenges. Technology and Education Quarterly, *19*(3), 35-50.

Zhang, X., & Li, W. (2020). Integrating multiple learning modalities for sustainable education. International Journal of Learning, *32*(1), 89–101.

Zhang, W., Li, C., & Sun, R. (2021). Expert-driven development of sustainable learning frameworks in higher education. Sustainability in Education, *12*(5), 563–579.

Zhang, Y. (2018). The concept of sustainable development: A global perspective. Chinese Journal of Educational Development, *23*(3), 72–75.